Quality Management Practices and Organizational Performance: Impact of Sustainable Product Development

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***Abstract*— Competition among the automotive industry has encouraged companies to implement quality management practices in all managerial aspects to ensure customer and stakeholder satisfactions. Therefore, guaranteeing only product quality is insufficient without considering sustainable product development, which involves economic, environment, and social elements. Companies that meet both objectives gain advantages in the challenges business sustainability. This study addresses the issues regarding quality management practices, sustainable product development on organizational performance in small and medium-sized enterprises in the Malaysian automotive industry. A research was carried out in 91 SMEs automotive suppliers in throughout Malaysia. The analyzed using SPSS version 23. The study revealed that sustainable product development is the full mediating relationship between quality management practices and organizational performance. Thus, it contributes in the automotive industry that strategies of sustainable product development have an impact on organizational performance.**

***Keywords*—** *Quality management practices, sustainable product development, organizational performance, Malaysian automotive industry, small and medium industries.*

1. Introduction

Quality management practices have received much attention in recent years due to its product quality is necessary to satisfy customers, increase profit, and sustain the business. The global marketplace compels organizations to broaden their perspectives of customer satisfaction. Indeed, substantial effort has been exerted to ensure the quality of products, but it remains insufficient without consideration of sustainable product development, which has economic, environment, and social elements [7].

One way to toughen the quality management practices and sustainable product development of small and medium-sized enterprises (SMEs) in the Malaysian automotive industry is an incorporate both practices in their organization strategies, in surviving the global competition between local and foreign automotive manufacturers. The automotive industry is chosen as the subject of this study because its firms have realized the importance of product quality and sustainable product development in being globally competitive and facilitating the attainment of developed nation status of Malaysia in 2020. In addition, sustainable product development in the automotive industry is an innovative means through which firms can meet global regulation standards. Therefore, this study aims to investigate the relationship between quality management practices and organizational performance, an impact on sustainable product development on this relationship.

The present of this paper to determine the most valuable practices of quality management, sustainable product development that have significantly contributed to organizational performance. This study is aimed to formed the framework model in which the incorporated of the

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significant impact of the organizational performance of the Malaysian automotive industry.

2. Literature Review

Quality management practices have been widely adopted since the 1950s. These practices have facilitated the identification of many critical principles for successful organizational performance: such as customer focus, quality management of suppliers, and employee empowerment [1]; leadership, strategic planning, market focus, information analysis, human resources management, process management, and business results [9]; continuous improvement, use of quality tools, and product design [6]; human resources and top management [12]; measurement and feedback, work environment and culture, system and process, education and training, and resource management [15]; policy on quality management, method of quality management, quality activities, use of tools, teamwork, data collection, and development of quality processes and products [13]; continuous improvement [11]; supplier involvement and product design [8].

The critical success factors of quality management practices are not standardized and vary with the industrial sector. Thus, no study has identified a common set of criteria for successfully implementing quality management practices. The framework of the present study was adapted from [10] and [2], who investigated the Spanish and American industries, respectively, and identified critical success factors for quality management practices, are namely: human resources management, process approach, product design, customer focus, supplier management, top management, continuous improvement, strategic planning, and information analysis.

The inconsistency in the relationship between sustainable product development as an independent variable and organizational performance as a dependent variable reported in previous studies [4] [3] has created an important gap in research. Thus, this study posits that sustainable product development may have an impact on the relationship between quality management practices and organizational performance. Thus the variables of sustainable product development are including social, economic and environment [7].

3. Methodology

This study involves SMEs in the Malaysian automotive industry. This empirical study aims to establish the relationship between quality management practices and organizational performance. The framework was adapted from [10] and [2]. The present study focuses on nine variables: human resources management, process approach, product design, customer focus, supplier management, top management, continuous improvement, strategic planning and information analysis. Using the sample random sampling method, where 91 respondents have replied and then use for data analysis. The reliability and validity of the questionnaire have been tested and validated. The reliability of the factors was determined by establishing Cronbach's alpha coefficient. Construct validity was completely assessed throughout factor analysis.

A total of 190 questionnaires was sent to SMEs of the Malaysian automotive industry on the basis of random sampling. However, the response rate was 47.89%. The list of organizations was obtained from the directories of manufacturers. The questionnaire consists of questions concerning quality management practices, sustainable product development, and organizational performance. This study used a six-point Likert-type scale ranging from 1 (low) to 6 (high).

4. Result and Discussion

Table 1 shows the demographic profile of the respondents. A total of 82.4% of the respondents were male, and 17.6% were female. Moreover, in Table 2 most of the respondents held a bachelor's degree (70.3%); the others had obtained a diploma (19.8%) and held a master's degree (9.9%). Table 3 shows a total of 31.9% of the respondents had more than 11 years of working experience, 19.8% had 7 to 10 years, 24.2% had 4 to 6 years, and another 24.2% had less than 3 years.

Table 1 Demographic profile of respondents

Gender of respondents	Frequency	Percentage (%)
Male	75	82.4
Female	16	17.6
Total	91	100

Table 2 Educational attainment of respondents

Higher education	Frequency	Percentage (%)
Diploma	18	19.8
Bachelor's	64	70.3
Master's	9	9.9
Total	91	100

Table 3 Years of service

Years of Service	Frequency	Percentage (%)
1–3 years	22	24.2
4–6 years	22	24.2
7–10 years	18	19.8
> 11 years	29	31.9
Total	91	100

Pearson correlation was used to determine the direction and strength of the nine variables quality management practices used in this study (i.e., human resources management, process approach, product design, customer focus, supplier management, top management, continuous improvement, strategic planning, and information analysis).

Pearson values of 0.10 to 0.29 to indicate weak correlation, 0.30 to 0.49 medium correlations, and 0.50 to 1.00 strong correlations [6]. Table 4 shows that the relationship between quality management practices and organizational performance is positive and strong (r = 0.618**). The nine dimensions of quality management practices had the following correlation coefficients: strength of leadership (r = 0.408**), human resources (r = 0.362**), supplier management (r = 0.481**), customer focus (r = 0.462**), process approach (r = 0.534**), product design (r = 0.566**), strategic planning (r = 0.505**), information analysis (r = 0.566**), and continuous improvement (r = 0.614**).

Table 4 Pearson correlation analysis

Variables	Pearson correlation
QMP	r = 0.618**
Leadership	r = 0.408**
HRM	r = 0.362**
Supplier management	r = 0.481**
Customer focus	r = 0.462**
Process approach	r = 0.534**
Product design	r = 0.566**
Strategic management	r = 0.505**
Information analysis	r = 0.566**
Continuous improvement	r = 0.614**

Examine the effect of sustainable product development and quality management practices on organizational performance, the hierarchical multiple regressions were utilized in this study. First, the independent and dependent variables were entered into the regression equation. Second, the independent and mediator variables were entered into the regression equation. Third, the mediator and dependent variables were entered into the equation. Finally, all variables were entered into the equation [5] found that the mediator variable specifies how a given effect occurs in the relationship between a predictor and a criterion variable.

Table 5 Hierarchical multiple regression test (in relation to QMP, SPD, and OP)

	Non-standardized Coefficients B ***Std. Error***	**Standardized Coefficients (Beta)**	**t**	***P***
Y: OP				
X:QMP	0.317 *0.468*	0.257	2.13	0.03
M: SPD	0.148 *0.120*	0.471	3.91	0.00
R^2	0.473			
Adj R^2	0.462			
F	15.244			
Sig.F	0.000			

Note: OP (Organizational Performance), QMP (Quality Management Practices), and SPD (Sustainable Product Development) ***Table 5*** *shows that p = 0.03 and the result was non-significant, thus indicating full mediation (Sobel Z-test)*

5. Conclusion and Implications

The Malaysian automotive industry is embracing quality management practices as a holistic, integrated program and a company-wide process that promotes the quality of products to satisfy customers. The study revealed that quality management practices have a positive relationship to organizational performance, where continuous improvement is the highest contribution of organizational performance (r = 0.618). Moreover, the study also found that sustainable product development has an impact (fully mediated shown by Sobel z-test is 7.114, sig < 0.000) on the relationship between quality management practices and organizational performance. That means the sustainable product development also has changed in this particular industry, which thus enhance its global competitiveness. In summary, the study indicated that sustainable product development is one of the most crucial factors for success in the globalization of the automotive industry. In sum, quality management practices, sustainable product development positively and significantly effect to organizational performance

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